Appl. No. 10/815,357
Amdt. Dated January 31, 2007
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This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A radiation imaging system for generating an image of an object, the imaging system comprising:

an X-ray source disposed in a spatial relationship to the object configured to transmit X-ray radiation through the object;

at least one X-ray detecting media configured to convert the X-ray radiation transmitted through the object to optical signals;

a modulator configured for modulating the optical signals;

an optical transmission conduit comprising a first end and a second end,

an optical detector configured to convert optical signals to corresponding electrical signals; and wherein the first end of the optical transmission conduit is coupled to the at least one X-ray [[~~detection~~]] detecting media and the second end is coupled to the optical detector.

2. (original) The radiation imaging system of claim 1, further comprising an image processor coupled to the optical detector and configured for processing the electrical signals to generate the image.

3. (currently amended) The radiation imaging system of claim 2, wherein the at least one X-ray detecting media comprises a plurality of scintillators.

4. (currently amended) The radiation imaging system of claim 3, wherein the optical transmission conduit comprises a plurality of guided optics.

5. (currently amended) The radiation imaging system of claim 4, wherein each one of [[a]] said plurality of [[~~optical fibers~~]] guided optics is coupled to a corresponding one of the plurality of scintillators.

6. (canceled)

7. (currently amended) The radiation imaging system of claim 1 [[6]] , wherein the modulator comprises an optical amplifier configured to change an amplification factor of the optical signals.

8. (original) The radiation imaging system of claim 7, wherein the optical amplifier is configured to operate in a continuous wave mode.

9. (original) The radiation imaging system of claim 7, wherein the optical amplifier is configured to operate in a pulse-sampling mode.

10. (currently amended) The radiation imaging system of claim [[6]] 1, wherein the modulator comprises an optically addressed spatial light modulator.

11. (original) The radiation imaging system of claim 10, wherein the spatial light modulator comprises:

a photoconductive layer configured to alter conductivity in response to a reception of light from the plurality of scintillators;

a light-modulation layer configured to alter a polarization, phase or intensity factor in response to the change in conductivity of the photoconductive layer; and

a sensing device configured to read the altered light-modulation layer and generate a corresponding optical signal.

12. (original) The radiation imaging system of claim 1, further comprising an optical coupling mechanism configured to enhance a coupling efficiency and for directing the optical signals through the optical transmission conduit.

13. (currently amended) An method for generating an image of an object, the method comprising:

transmitting X-ray radiation through the object at a predetermined location;

converting the X-ray radiation transmitted through the object to optical signals;

modulating the optical signals;

providing an optical transmission path for optical signals to an optical detector;

converting the optical signals to corresponding electrical signals; and

processing the electrical signals to generate the image.

14. (original) The method of claim 13, wherein the step of providing the optical transmission path comprises using an optical transmission conduit.

15. (original) The method of claim 14, wherein the step of providing the optical transmission path comprises using a plurality of optical fibers and optical waveguides.

16. (original) The method of claim 14, wherein the step of providing the optical transmission path comprises using a plurality of free-space optics.

17. (canceled)

18. (original) The method of claim 13, further comprising directing the optical signals through the optical transmission path.

19. (currently amended) A computer tomography (CT) system for generating an image of an object, comprising:

an X-ray source configured to emit a stream of radiation;

at least one X-ray detecting media configured to convert the X-ray radiation transmitted through the object to optical signals;

a modulator configured for modulating the optical signals;

an optical transmission conduit comprising a first end and a second end; and

an optical detector configured to convert optical signals to corresponding electrical signals; and wherein the first end of the optical transmission conduit is coupled to the at least one X-ray [[~~detection~~]] detecting media and the second end is coupled to the optical detector via the modulator.

20. (original) The CT system of claim 19, wherein the X-ray source and the at least one X-ray detecting media are disposed on a gantry assembly of the CT system, wherein the gantry assembly is configured to rotate about the object being imaged.

21. (currently amended) The CT system of claim 20, further comprising an optical coupling mechanism configured to couple the optical signals generated by the at least one X-ray detecting media disposed on the gantry assembly to the optical conduit [[~~detector~~]].

22. (original) The CT system of claim 21, wherein the optical coupling mechanism comprises a micro-lens array.

23. (original) The CT system of claim 19, further comprising an image processor coupled to the optical detector and configured to process the electrical signals to generate the image.

24. (original) The CT system of claim 19, wherein the optical transmission conduit comprises guided optics.

25. (original) The CT system of claim 19, wherein the optical transmission conduit comprises free-space optics.